

Claims:

1. A process for the catalytic hydrodehalogenation of SiCl_4 to form HSiCl_3 , which comprises bringing a gaseous feed mixture comprising hydrogen and silicon tetrachloride into direct contact with at least one heating element of a resistance heating device, with the heating element being composed of a metal or a metal alloy and being heated to carry out the reaction.
2. The process as claimed in claim 1, characterized in that at least one heating element composed of a metal from the group consisting of niobium, tantalum and tungsten or of a metal alloy comprising niobium, tantalum and/or tungsten is used.
3. The process as claimed in claim 1 or 2, characterized in that at least one heating element which has the form of a wire, a spiral, a web, a tube, a plate, a mesh or a honeycomb body is used.
4. The process as claimed in any of claims 1 to 3, characterized in that a heating element whose wire diameter, wall thickness or plate or layer thickness is from 0.1 mm to 10 mm is used.
5. The process as claimed in any of claims 1 to 4, characterized in that the heating elements of the resistance heating device are operated at a temperature in the range from 300 to 1250°C.

6. The process as claimed in any of claims 1 to 5,
characterized in that
the reaction is carried out at a temperature in the range from 600 to 950°C and a
pressure of from 0.1 to 100 bar abs.

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7. The process as claimed in any of claims 1 to 6,
characterized in that
the reaction is carried out at a space velocity of from 2000 to 750 000 h⁻¹ and the
gas mixture of hydrogen and silicon tetrachloride is passed over the heating
elements of the resistance heating device at a linear velocity of from 0.01 to
10 m/s.

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8. The process as claimed in any of claims 1 to 7,
characterized in that
an SiCl₄/H₂ mixture having a molar ratio of from 1:0.9 to 1:20 is used.

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9. The process as claimed in any of claims 1 to 8,
characterized in that
the degree of conversion is set by setting the electric power of the resistance
heating device.

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10. The process as claimed in any of claims 1 to 9,
characterized in that
the reaction is carried out in a flow reactor whose walls or wall insides are
composed of niobium, tungsten, tantalum, a niobium-, tungsten- and/or tantalum-
containing alloy, a heat-resistant glass, fused silica, a heat-resistant glaze or a
heat-resistant ceramic.

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11. The process as claimed in any of claims 1 to 10,

characterized in that

the product mixture is passed through at least one heat exchanger located at the beginning of the process in order to vaporize SiCl₄ and/or preheat the H₂/SiCl₄-containing feed mixture.

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12. The process as claimed in any of claims 1 to 11,

characterized in that

(i) the product mixture is at least partially condensed, liquid HSiCl₃ is isolated and any hydrogen and silicon tetrachloride obtained are recirculated to the feed stream to the process or (ii) the product stream is passed as starting material to a further use.

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